

1. A symbol reader for reading marked regions on a substrate comprising:
  - at least one light source providing an impingement beam;
  - a beam splitter receiving the impingement beam from the at least one light source and splitting the impingement beam emitted from the at least one light source to allow some light from the impingement beam to contact the substrate as a contact beam while allowing some light to proceed in a first direction to not contact the substrate;
  - a reflected beam proceeding one hundred and eighty degrees relative to the contact beam returned from the substrate, said reflected beam proceeding into the beam splitter where a first portion of the reflected beam is directed in a second direction 180 degrees relative to the first direction, and a second portion of the reflected beam passes through the beam splitter;
  - a telecentric lens positioned relative to the beam splitter to receive one of the first and second portions of the reflected beam after passing through the beam splitter;
  - a sensor located opposite of the telecentric lens from the beam splitter, said sensor receiving the portion of the reflected beam after it passes through the telecentric lens.
2. The symbol reader of claim 1 wherein the impingement beam, beam splitter and substrate are collinear.
3. The symbol reader of claim 1 wherein the telecentric lens, beam splitter and substrate are collinear.

4. The symbol reader of claim 1 wherein the first direction is forty five degrees relative to the impingement beam.
5. The symbol reader of claim 1 wherein the at least one light source provides light having an infrared wavelength.
6. The symbol reader of claim 1 wherein the at least one light source further comprises at least one LED.
7. The symbol reader of claim 6 wherein the at least one light source further comprises a beam combiner.
8. The symbol reader of claim 6 wherein the at least one light source further comprises a fiber light pipe directing the impingement beam at the beam splitter.
9. The symbol reader of claim 1 wherein the at least one light source provides collimated light.
10. A symbol reader for reading marked regions on a substrate comprising:
  - at least one light source providing an impingement beam;
  - a first beam splitter receiving the impingement beam from the at least one light source and splitting the impingement beam emitted from the at least one light source to allow some light from the impingement beam to contact the substrate as a first contact

beam while allowing some light to proceed in a first direction to not contact the substrate, said first direction ninety degrees relative to the first contact beam;

a reflected beam proceeding one hundred and eighty degrees relative to the first contact beam returned from a contact area on the substrate, said reflected beam proceeding into the first beam splitter where a first portion of the reflected beam is directed in a second direction 180 degrees relative to the first direction, and a second portion of the reflected beam passes through the beam splitter;

a telecentric lens positioned relative to the first beam splitter to receive one of the first and second portions of the reflected beam after passing through the beam splitter;

a sensor located opposite of the telecentric lens from the first beam splitter, said sensor receiving the portion of the reflected beam after it passes through the telecentric lens.

11. The symbol reader of claim 10 further comprising a second beam splitter and a second light source, said second light source providing a second impingement beam to the second beam splitter and the second beam splitter providing a second contact beam to the substrate to contact the substrate at the contact area.

12. The symbol reader of claim 11 wherein the second contact beam is substantially colinear with the first contact beam.

13. The symbol reader of claim 11 wherein the second light source is provided by a light emitting diode.

14. The symbol reader of claim 11 wherein the first beam splitter further comprises a 50/50 mirror.

15. The symbol reader of claim 10 wherein the telecentric lens receives the first portion of the reflected beam, and the telecentric lens is located substantially the same distance from the substrate as the first beam splitter.

16. The symbol reader of claim 10 further comprising a mangifier lens proximate to the telecentric lens.

17. The symbol reader of claim 10 wherein the telecentric lens has an optimum range intermediate about 3-4 inches to about 15 inches.

18. The symbol reader of claim 10 wherein the substrate is angled relative to a plane perpendicular to the first contact beam at the substrate intermediate about zero and about forty five degrees.

19. The symbol reader of claim 10 wherein the telecentric lens has an optimum range up to at least 20 feet.